

CLAIMS

1.- Adjustable transfer unit for transferring upright and aligned articles
5 from a first to a second conveyor, of the type comprising a thrusting wheel (1)
driven in a rotary fashion by driving means (6) and having radial blades (2, 3), a
curved support track (4) provided below said radial blades (2, 3) between a
delivery end (31) of an inlet conveyor (30) and a reception end (41) of an outlet
10 conveyor (40), and railing means (5) along at least one part of said support track
(4), characterised in that said inlet conveyor (30) is a conveyor adapted to
convey articles (A, B) upright on their base (A1, B1) on a transfer surface (32)
and said outlet conveyor (40) is an overhead conveyor adapted to convey articles
(A, B) hanging from a projecting configuration (A2, B2) on a top part thereof
along lifting guides (42) of the overhead outlet conveyor (40), with support track
15 (4) of the transfer unit being connected to vertical movement means (7, 8) that
can be driven to adapt the vertical distance between support track (4) and said
lifting guides (42) of the outlet conveyor (40) to articles (A, B) having said
projecting configuration (A2, B2) at different heights.

2.- Unit, according to claim 1, characterised in that support track (4) can
20 be moved by said vertical movement means (7, 8) between a top position
suitable for small size articles (A), in which support track (4) is substantially level
with said transfer surface (32) of inlet conveyor (30), and at least one lower
position suitable for medium or large size articles (B), in which support track (4)
is at a lower level than said transfer surface (32) of inlet conveyor (30), with
25 articles (B) passing from transfer surface (32) to support track (4) by falling by
their own weight as they are moved within areas delimited at least by radial
blades (2, 3) and said railing means (5).

3.- Unit, according to claim 2, characterised in that said vertical movement
means (7, 8) include at least one unit of a vertical sleeve (7) and nut (8).

30 4.- Unit, according to claim 2, characterised in that said vertical movement
means (7, 8) include at least one pair of vertical sleeve (7) and nut (8) units
connected together by means of a flexible traction element (9), such as a chain or
belt, which flexible traction element (9) is driven by a pinion gear or drive pulley
(15) connected to a power shaft of driving means (10) to rotate said vertical
35 sleeves (7) in one direction or another.

5.- Unit, according to claim 4, characterised in that said driving means (10) include a reducer unit.

6.- Unit, according to claim 1, characterised in that thrusting wheel (1) is made up of first and second circular structures (11, 12), coaxial, and radial blades (2, 3) include first radial blades (2) attached to said first circular structure (11) and second radial blades (3) attached to said second circular structure (12), at predetermined angular separations along their respective circumferences, with adjustment and attachment means being provided (16, 17, 18) to adjust the relative angular position between both first and second circular coaxial structures (11, 12) in order to adapt the separations between said first and second radial blades (2, 3) to different size articles (A, B).

7.- Unit, according to claim 6, characterised in that it includes first and second inner wall parts (13, 14) attached respectively to first and second circular coaxial structures (11, 12) and arranged on opposite sides of respective first and second radial blades (2, 3), with said first and second inner wall parts (13, 14) being placed at different radial distances from the centre of thrusting wheel (1) so that the former can rest at least partially superimposed on the latter when the separations between first and second radial blades (2, 3) are reduced.

8.- Unit, according to claim 6, characterised in that said driving means (6) of thrusting wheel (1) include a reducer unit coupled to one of said first or second circular coaxial structures (11, 12) which in turn is joined to the other of said first or second circular coaxial structures (11, 12) by means of adjustment and attachment means (16, 17, 18).

9.- Unit, according to claim 6, characterised in that adjustment and attachment means (16, 17, 18) include guide means (16) of curved trajectory with respect to the centre of thrusting wheel (1) in one of said first or second circular coaxial structures (11, 12), guide followers (17) being attached to the other of said first or second circular coaxial structures (11, 12) and arranged to move along said guide means (16), and releasable attachment means (18) for blocking first and second circular coaxial structures (11, 12) together in a selected angular position.

10.- Unit, according to claim 9, characterised in that said guide followers (17) are provided at the ends of separators (19) attached to one of said first or second circular coaxial structures (11, 12), with the other of said first or second circular coaxial structures (11, 12) resting on said separators (19).

11.- Unit, according to claim 1, characterised in that a delivery end of inlet conveyor (30) is made up of a transfer surface (32) level with a stationary support plane (51) arranged below the open bottom walls of drop chutes (52) associated with a rotary structure (53) of an article positioning machine (50),
5 with said articles being pushed along said stationary support plane (51) by walls of said drop chutes (52) and diverted towards said transfer surface (32) by stationary deflecting means (54).

12.- Unit, according to claim 6, characterised in that a delivery end of inlet conveyor (30) is made up of a transfer surface (32) level with a stationary
10 support plane (51) arranged below the open bottom walls of drop chutes (52) associated with a rotary structure (53) of an adjustable article positioning machine (50), with said articles being pushed along said stationary support plane (51) by walls of said drop chutes (52) and diverted towards said transfer surface (32) by stationary deflecting means (54), with drop chutes (52) of said adjustable
15 positioning machine (50) having multiple compartments (55) of adjustable width for different size articles (A, B), with the adjustable positioning machine (50) being capable of filling several of said compartments (55) of each drop chute (52) with upright articles (A, B) during each turn of said rotary structure (53).

13.- Unit, according to claim 12, characterised in that said predetermined
20 angular separations between radial blades (2, 3) along the respective first and second circular coaxial structures (11, 12) are adapted to the separations between drop chutes (52) in the rotary structure (53) of the adjustable positioning machine (50) and can be adjusted according to the adjustment of compartments (55) in drop chutes (52).

25 14.- Unit, according to claim 11, characterised in that said driving means (6) rotate thrusting wheel (1) at a speed such that the radial blades thereof (2, 3) move at the same tangential speed as the drop chutes of rotary structure (53) of said adjustable positioning machine (50).